ROCKY SHORE HABITAT (LESSON 14)

The Bigelow Laboratory for Ocean Sciences in West Boothbay Harbor, Maine has included a section in their website that helps users to understand Maine’s Marine Habitat.

1. Boot up your computer and type www.bigelow.org

**2. Click on “Education” . . . 3. Click on “Online Resources” near the bottom of the left hand column**

**4. Click on “Maine Intertidal Zone Investigation” (MITZI)**

5. Click on “next” at the top right corner of the page. . . 6. You are at “How to Navigate this Site”

**7. Click on the hermit crab image at the left of your screen. The crab’s name is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.**

8. Click on an “arrow”. You should be back at “How to Navigate this Site”. Spend some time reading how to navigate the site. Be sure to use the “Next” and “Back” arrows so you won’t get “bumped out” of the site.

**9. Click “Back arrow” to find “Did You Know?” Fill in the blanks.**

In Maine, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_people live in \_\_\_\_\_\_\_\_\_coastal towns.

Maine’s coastal wetlands support a \_\_\_\_\_\_\_\_\_\_-\_\_\_\_\_\_\_\_\_\_dollar commercial and recreational \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ industry.

Shoreline areas are the single most important resource for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ industry.

**10. Click on the “Site Map” at the bottom of the page. The site map shows what is available in MITZI.**

11. Click on “General Information”. The following fill-in-the-blanks or questions are in the order of the 16 photos located here.

**Click “Next” or “Back” to navigate from photo to photo, or click on a photo number.**

Photo 1: If you lived in the rocky shore habitat, you would have to be able to find \_\_\_\_\_\_\_\_\_\_\_\_\_\_, protect yourself from \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and breathe both \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and out of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_. Maine’s rocky shores are home to a large \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of plants and animals.

Photo 2: The sea level or land level rises and falls over long periods of time due to \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Click on “Site Map” at the bottom of the page. Click on “Glossary”. Click on the letter “B”.**

Using the glossary section of the website, find and write down the definition of Bathymetry.

ROCKY SHORE HABITAT (LESSON 14)

Bathymetry means\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(HINT: As you look at the diagrams in the next photos, it might help you to try to image the earth as being inside of a big water bubble or water balloon. Imagine that as the earth goes through its daily rotation it is spinning on its axis inside the water bubble.)

Photo 3: The tides that occur on the new moon and full moon are called \_\_\_\_\_\_\_\_\_\_\_\_\_\_tides. The tides that occur on the 1st quarter moon and the 3rd quarter moon are called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_tides. The gravitational pull of the \_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_ and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of the earth combine to produce two bulges of water.

Look at the diagram. Notice the position of the earth, sun and moon in the New Moon (Spring Tide), First Quarter (Neap Tide), Full Moon (Spring Tide), and Third Quarter (Neap Tide) phases.

The Spring Tide water bulges are a little bigger than the Neap Tide water bulges. The Spring Tides are higher tides than the Neap Tides. Look again at the positions of the earth, sun, and moon. What do you think might cause the Spring Tide water bulges to be bigger than the Neap Tide water bulges?

Photo 4: Water is held on to the earth’s surface by the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_of the earth but the gravitational forces of the sun and moon cause the ocean water to pull out from the earth as shown in the picture.

Photo 5: Two tide bulges occur on the earth; one where the gravitational pull is the strongest and directly opposite where the gravitational pull is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Photo 6: Many factors affect the tides. Coastal areas have one of 3 typed of tides:**

**Diurnal tides mean one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and one \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Semidiurnal tides mean \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_**

**Mixed tides which means two high tides and two low tides, but different \_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_ levels**

Photo 7: There are \_\_\_\_\_\_\_\_\_\_\_\_\_acres of Rocky Shore Habitat. Most of the rocky shore is located in the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ region. This area provides a habitat for many. The Rocky shore provides \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_for seaweeds and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ for marine life, habitat and nursery for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, roosting areas for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and foraging and haul out areas for \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Photo 8 and 9: The scheme of zonation pioneered by Scientists \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_names five zones on the Rocky Shore habitat.

Page 2 of 5

ROCKY SHORE HABITAT (LESSON 14)

List the five zones and the organisms usually found in each (the first one is completed for you):

1. spray zone lichens

2.

3.

4.

5.

Photo 10: The type of rocky shore pictured here has some larger boulders and smaller rocks called cobble.

The organisms that live in the Rocky Shore Habitat can vary from season to season and from \_\_\_\_\_\_\_\_\_\_\_to \_\_\_\_\_\_\_\_\_\_depending on wave\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_for space.

Photo 11: This picture shows the lower intertidal zone where high wave action occurs. The land is exposed to water more than the other intertidal areas. Larger organisms live here.

Photo 12: Notice the zones labeled on the rock. Notice the species listed for each zone.

Photo 13: Use your glossary to look up what Biomass means. Write the meaning below:

What happens in colder weather on the rocky shore?

Photo 14: Click on the “Site Map” to find the glossary. Look up the definitions for biotic and abiotic.

Biotic means

Abiotic means

Some biotic stresses are: Some abiotic stresses are:

Page 3 of 5

ROCKY SHORE HABITAT (LESSON 14)

Photo15: Why do you think that high wave action affects the types of organisms living on rocky shores?

Why is there little open space?

Recruitment means:

How does yearly recruitment affect the rocky shore?

Photo 16: How do algae help organisms on the protected shore? Why is there more open space on a protected shore?

In the next section of Rocky Shore Habitat, plants and animals will be researched. Still using the Bigelow website, click on “Site Map” at the bottom of the page. Click on “Image Library”.

Page 4 of 5

NAVIGATING MITZI ON THE BIGELOW WEBSITE

Do the matching below using information on this site:

\_\_\_\_\_Use the arrows a. provides additional activities for your teacher to use

\_\_\_\_\_Click on the image b. roll over to change or highlight features

\_\_\_\_\_Rollover images c. provides a Table of Contents

\_\_\_\_\_the Image library d. takes you to another zone on the rocky shore habitat

\_\_\_\_\_Site map e. brings you back to How to Navigate this Site

\_\_\_\_\_Help f. links to the image library

\_\_\_\_\_Teacher resources g. a collection of pictures

\_\_\_\_\_ Shoreline profile h. navigates you forward or backward on the site

\_\_\_\_\_ Maine Map i. often provides an enlarged and labeled version of the picture

\_\_\_\_\_ Film icon j. tells the location of a picture

ROCKY SHORE HABITAT (LESSON 14)

Page 5 of 5